Aug. 14, 1951 L. R. DRAKE ET AL 2,564,641

AWNING

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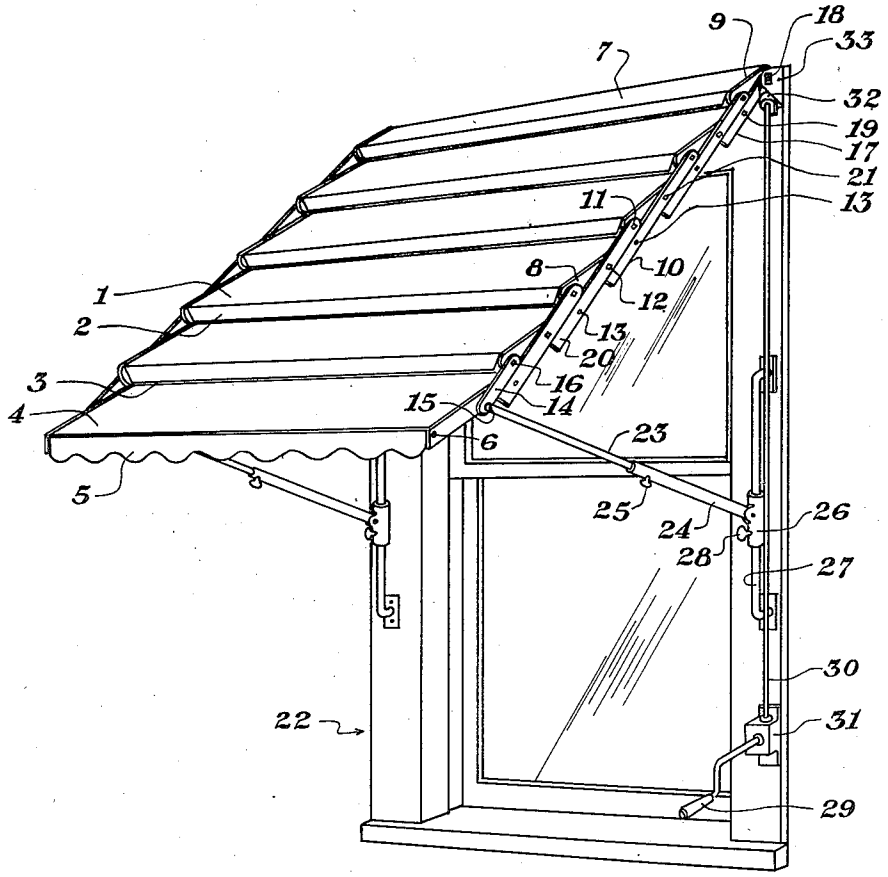


Fig. 1

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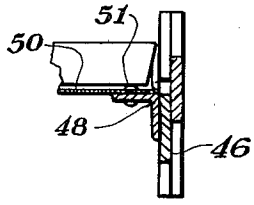


Fig. 7

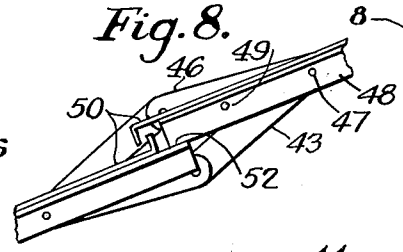
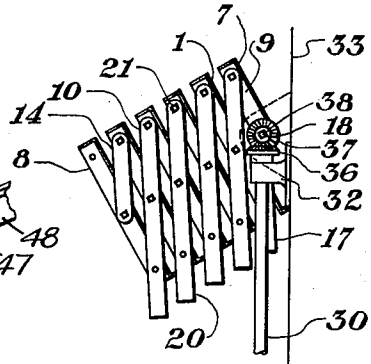


Fig. 8.



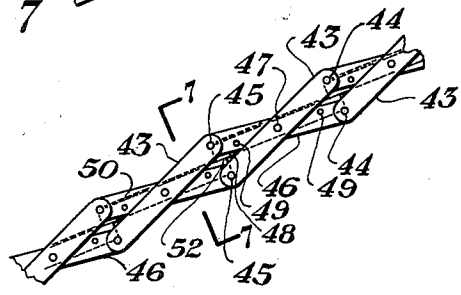


Fig.6

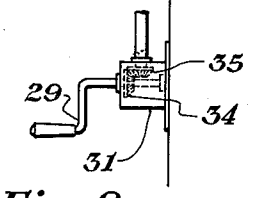


Fig. 2

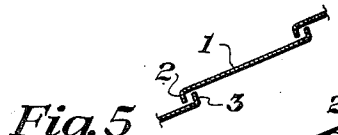


Fig.5

Fig. 3

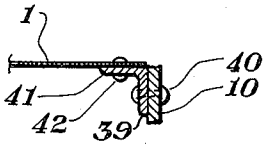


Fig. 4

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UNITED STATES PATENT OFFICE

2,564,641

AWNING

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4 Claims. (Cl. 160—62)

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The invention relates to awnings, and more particularly pertains to a light metal awning designed for use in conjunction with homes, stores, and the like.

An object of the invention is to provide a metal slat awning adapted to be extended and retracted to a folded position supported and controlled by a particular combination of lazytong trusses.

Another object of the invention is to provide an awning structure which, in the retracted state, folds into a neat compact bundle allowing ready entry of sun and wind to the window area, if desired, and when extended provides shade over the window area.

Another object of the invention is to provide an awning structure which is readily operated and extended various amounts as desired to regulate the amount of reflected light.

Other further objects and advantages of the invention will become apparent during the course of the following description, which, taken in conjunction with the accompanying drawing illustrates several of various embodiments of the invention.

In the drawings:

Fig. 1 is a perspective view of one embodiment of the invention.

Fig. 2 is a broken side elevation of the embodiment of Fig. 1 showing the awning in a closed or retracted position but omitting the brace rod and showing elements of the supporting bracket in dotted lines to more clearly show the relationship of adjacent parts.

Fig. 3 is a side elevation of the structure of Fig. 1 showing in greater detail the lazytong portion of the awning in an extended or open position.

Fig. 4 is a fragmentary cross-sectional view taken along line 4—4 of Fig. 3 showing in detail the manner of mounting and supporting the vanes on the lazytongs in the structure of Figs. 1 and 3.

Fig. 5 is a fragmentary cross-sectional view showing the exact shape of the awning sections or slats.

Fig. 6 is a side elevational view showing another embodiment of the invention.

Fig. 7 is a fragmentary cross-sectional view taken along line 7—7 of Fig. 6 showing the manner of mounting and supporting the blind slats or vanes on the lazytongs of the structure of Fig. 6.

Fig. 8 is a fragmentary side elevation of the embodiment of Fig. 6 as viewed from the opposite side to that shown in Fig. 6.

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Referring to Fig. 1 the main awning panels or slats 1 are constructed with downwardly projecting edge portions or flanges 2 at the lower end and with similar upwardly projecting flanges 3 at the upper end all as seen more clearly in Fig. 5. The lowermost panel 4 is provided with a decorative skirt 5 which is adapted to assume a vertical position regardless of the tilt angle of the awning proper by virtue of being pivotally mounted at either end on pins 6. The uppermost panel 7 is narrower than the others to allow mounting of the lazytong structure at a pivot point in a manner to be described in detail hereinafter. The panels 1 are secured to angle brackets 8 comprising one member of the lazytong structure. The uppermost angle bracket 9 upon which panel 7 is mounted is shorter than the remaining angle bracket members 8. The other member completing the lazytong structure consists of a strap 10 pivotally connected to angle bracket 8. Each strap 10 is progressively connected near one end at point 11 to one angle bracket 8, at point 12 intermediate its length to the next angle bracket 8 of the series, and near the other end at point 13 to the next angle bracket 8. The connections at points 11, 12, and 13 are suitably made by rivets or other means in such a manner as to allow pivoting at these points. In the foregoing manner, a parallelogram shaped structure, adapted to open and close, is provided. The end member 14 of each lazytong structure corresponding to straps 10 is slightly shorter than the regular straps 10. The lower strap member 14 is shorter and is pivotally connected at its ends only to the two end angle brackets 8 at points 15 and 16. The upper end strap member 17 corresponding to strap 10 is also shorter than remaining straps 10 and is pivotally connected at its upper end to uppermost angle bracket 9 at 18 and at its lower end to the upper end of the first angle bracket 8 at point 19. Each of straps 10 and strap 17 extends beyond its lowermost pivot anchorage to provide supporting extension arms 20 for the next lower strap 10 in the series. If desired stiffening rods 21 extending across the slats or panels may be included from time to time and are preferably positioned at the center of the slats and are anchored at the ends in straps 10 by means of a square shoulder on the rod 21 engaging a square hole in the straps 10. The rod 20 is round at the point where it passes through angle bracket 8 to allow pivoting of the bracket 8 on the rod 21. The angle which the awning assumes with a window indicated generally by numeral 22 or other mounting surface

is controlled by pivotally mounting on lower strap member 14 a rod 23 which telescopes in tube 24. The telescoping rod 23 may be secured at varying degrees of extension by set screw 25 threadedly mounted in tube 24. The lower end of tube 24 is hingedly connected to sliding collar 26 which is slidably mounted on bracket 27. Bracket 27 is conveniently mounted on the window frame. Collar 26 may be secured at various positions on bracket 27 by set screw 28. The desired position of the awning as regards its angle with the vertical is then obtained by suitable adjustment of set screws 25 and 28. The raising and lowering of the awning is secured by rotation of crank 29 geared to actuating rod 30 through gear box 31. Near the upper end rod 30 extends through collar 32 which is in turn secured to the window frame. Above the collar 32 rod 30 is operatively associated with the awning for raising and lowering the latter in a manner to be described in connection with Fig. 2. The awning is pivotally mounted at a pivot point 18 of the lazytongs structure in bracket 33.

As seen in Fig. 2, the awning is in a raised position and the manner of raising and lowering it is shown in greater detail. Gear box 31, in which crank 29 is journaled, covers bevel gear 34 fixedly mounted on the crank 29. A second gear 35 mating with gear 34 is mounted on rod 30 which is also journaled in gear box 31. At the upper end of rod 30 a bevel gear 36 is fixedly mounted and mates with a similar gear 37 mounted on a cross rod 38. Cross rod 38 extends across the top vane or panel 7 and through lazytong angle bracket 9 which is pivotally mounted on rod 38. Cross rod 38 is fixedly secured to strap member 17 at 18 whereby turning the crank 29 causes the cross rod 38 to rotate thus opening and closing the lazytong structure which, of course, lowers and raises the awning vanes or panels.

Referring to Fig. 3 the details of the lazytong structure are seen more clearly. A feature of the invention is the manner of mounting the panels or vanes 1 of the awning. In the embodiment of Figs. 1 and 3 the vanes of panels 1 are mounted directly on the angle bracket members 8 as seen more clearly in Fig. 4. The vanes are mounted in such a manner that the plane of the main surface of the vane or panel 1 is parallel to and substantially in the plane of the top edge of the angle bracket 8. Thus the vanes or panels of the awning are associated with the lazytong structure in a very simple manner, while the extension arms 20 serve to lend strength and rigidity to the structure.

In Fig. 4 the manner of securing the vanes or panels 1 of the awning to the lazytong assembly is shown. As seen one leg 39 of the angle bracket member 8 is pivotally secured to strap members 10 of the lazytong truss as by rivets 40 while the other leg 41 is fastened to the panel 1 by rivet 42.

In Fig. 5 the exact shape of the panels or slats 1 are shown. The integral downwardly projecting flange 2 along the lower edge of the slat 1 and the upwardly projecting flange 3 along the upper edge of the slats are more clearly seen. Additionally the manner in which the flanges of a series of slats or vanes interengage when the awning is lowered will be clearly apprehended by reference to Fig. 5.

In the embodiment depicted in Fig. 6 the lazytong structure and method of mounting the vanes or slats on the lazytong structure has been modified. Outer lazytong strap 43 is rounded at each end and is pivotally connected at each end at 44 and 45 to inner lazytong strap member 46. Similarly strap member 46 is in turn pivotally connected at each end at 44 and 45 to strap member 43. Additionally the strap members 43 and 46 are pivotally associated with each other at their respective centers on rivet 47. A continuous series of these straps associated in the foregoing manner forms a conventional lazytong structure. An angle bracket 48 is fixedly mounted along one leg on inner lazytong strap 46 as by rivet 47 and rivets 49 on both sides of rivet 47. Slats or vanes 50 are attached as by rivets 51 to the other leg of the angle bracket 48 all as more clearly seen in Fig. 7. The angle bracket 48 is mounted on the lazytong strap in such a manner that its lower end assumes a slight positive angle with the longitudinal axis of the inner truss 46. The end of the angle bracket 48 serves as a stop at 52 to prevent the lazytong structure from opening completely and thus assuming a dead center position. This feature admits of more ready closing or raising of the structure.

In Fig. 7 the association of the angle bracket 48, the slats 50, and the lazytong strap 46 is shown in detail. Strap 46 is shown positioned against one leg of angle bracket 48 and is secured thereto by rivets (not shown). The other leg of angle bracket 48 mounts vane or slat 50 and is secured thereto as by rivet 51.

In Fig. 8 the manner in which the angle brackets 48 serve as stop members is more clearly portrayed. As shown the leg of one awning slat supporting angle bracket 48 extends and rests upon a projecting leg of an adjacent angle member at 52 so that the lazytong truss members are prevented from completely opening up and thus assembling a dead center position.

The operation of the device of the invention will be more clearly understood from the following description in connection with Figs. 1, 2, and 3. Assuming the device to be in the position shown in Fig. 2 turning crank 29 in the proper direction will cause the lazytong structure to open or straighten out until it assumes the position shown in Figs. 1 and 3. At this time each strap 10 will rest upon the extension arm 20 of the adjacent strap 10 and greater rigidity of the structure will thus be secured. Also in this position the panels or slats 1 rest one upon another with the upwardly projecting flanges 3 engaging the downwardly projecting flanges 2 in the manner shown in Fig. 5. In this position the window is protected from rain, sunshine, and the like. It will be apparent that the slats or vanes may be held and kept at any intermediate degree of a completely lowered or completely raised position. If desired the angle which the awning assumes with the window is readily susceptible of adjustment by lengthening rod 23 and sliding collar 26 to an appropriate location. It will be appreciated that, in addition to providing the feature of allowing the angle of the awning and the window to be adjusted, the means securing this result also greatly strengthens the mounting of the awning.

Materials from which the awning of the invention may be preferably constructed are magnesium, aluminum, and alloys thereof. These materials being of very light weight and possessing ample strength allow the fabrication of an awning which is characterized by ease of adjustment. Although not generally as suitable, plastics may also be used, especially for the panels or slat sections.

Among the advantages of the invention should be mentioned the extreme simplicity of the manner of mounting the slats or panels on the lazytong structure and the rigidity secured through the use of extension arms on the lazytong structure.

We claim:

1. In an awning the combination which includes spaced paired lazytong trusses, awning panels mounted on the inner truss members with the plane of their surface making a slight positive angle with the respective truss members upon which they are mounted, a stop carried by the truss members adapted to limit the opening movement of the truss members, supporting arms adapted to hold the lower end of the lazytong trusses away from a supporting surface, and means associated with the lazytong trusses at a point where the upper pair of truss members meet for increasing and decreasing the angle formed by the intersection of the truss members.

2. In a light metal awning the combination which includes spaced paired lazytong trusses, the inner member of which comprises an angle section, awning panels secured at each end to one leg of the respective angle sections of the lazytong trusses, said panels having their upper surfaces substantially in the same plane as the plane of the associated legs of the angle sections upon which they are mounted, extension arms on the outer members of the lazytong trusses providing support to similar adjacent truss members, means for mounting the lazytong trusses at a pivot point where two upper truss members meet, supporting arms adapted to hold the lower end of the lazytong trusses away from a supporting surface, and means associated with the lazytong trusses for opening and closing the lazytong trusses.

3. In an awning the combination which includes spaced paired lazytong trusses, the inner members of which comprise angle sections, awning sections respectively having upwardly projecting flanges along the top edges and downwardly projecting flanges along the bottom edges and mounted at each end between the lazytong

trusses on the angle sections thereof, extension arms on the outer truss members providing support to adjacent truss members, means for mounting the lazytong trusses on the support at the pivot point of the upper trusses, supporting arms adapted to hold the lower end of the lazytong trusses away from a supporting surface, and means for opening and closing the lazytong trusses.

4. In a light metal awning the combination which includes spaced paired lazytong trusses, an angle bracket carried by the inner truss members with the downwardly projecting leg of one angle bracket riding upon the horizontally projecting leg of an adjacent angle bracket, awning panels secured at their respective ends to the projecting legs of the angle brackets, said awning panels being mounted with the plane of their surface making a slight positive angle with the lower end of the inner truss member upon which they are mounted, stop means formed by the leg of one angle bracket riding on the leg of an adjacent angle bracket adapted to limit the opening movement of the lazytong truss, a telescoping extension arm connecting the lower end of the truss members with the mounting surface, and means operatively associated with the lazytong truss for increasing and decreasing the angle formed by the intersection of two truss members.

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